

MC&G
P52 file

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29 March 1971

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MEMORANDUM FOR: [REDACTED]

SUBJECT : Conference at TOPOCOM, 23 March 1971

1. TOPOCOM hosted representatives from the MC&G civil agencies as a continuation of the technical exchange between DoD and civil agencies involved in MC&G activities. The subject conference was held at the [REDACTED] level and there was good representation with approximately 50 attending. It lasted the entire day.

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2. General O'Donnell greeted the group, spoke enthusiastically of the complexity of the work and mission of the TOPOCOM, mentioning his two hats, one as Commanding Officer of TOPOCOM, and the other as Topographer of the Army in a staff capacity to the Army's Chief of Staff. He was enthusiastic regarding the potentials of his Command for serving strategic requirements of the military and the tactical requirements of the Army in the field. General O'Donnell welcomed the representatives of the civil agencies and hoped they individually would return at any time to discuss specific items of mutual concern so that all would benefit.

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3. [REDACTED] Special Activities Coordinator who attends the MC&G Working Group, described the overall mission of TOPOCOM. He noted some new organizational changes. You may remember the Staff Directorates for Plans, Policies, and Requirements; for Operations; and for Advanced Systems. A new Staff Directorate for Automatic Data Processing has been added since the amount of computerization for data reduction, cartographic activities, and maintenance of data bases/banks

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is growing so rapidly. The old Army Map Service had the first UNIVAC after the Bureau of the Census. Now the UNIVAC 1108 is installed and operating. /ACIC also has one./ The high capacity and nature of this computer was described in some detail, but don't ask me about it!

4. A revelation to me was the size of TOPOCOM's Engineer Topographic Laboratories (ETL), at least as indicated by its organizational breakdown. As you know, it handles TOPOCOM's basic research, and experimental development through advanced development in the Mapping, Geodetic, and Terrain Analysis fields. Its components are the Research Institute (basic in MC&G); the Computer Sciences Laboratory; the Topographic Engineering Division; the Automated Mapping Division; the Photo-Interpretation Research Division; the Geographic Sciences Division; and the Surveying and Geodesy Division. /The Earth Sciences Laboratory, located at Natick, Massachusetts, is being moved to ETL. Soon this laboratory, the Geographic Sciences Division, and the Photo-Interpretation Research Division will be combined into one laboratory within ETL, so I am told./ ETL will all be centered in a new approved building at Fort Belvoir.

5. Other highlights of [] briefing were statistics on map compilation, a large proportion of which has been and will be increasingly based on all source data. Of the scheduled Joint Operations Graphics at the scale of 1:250,000, 198 have been completed and 1,106 additional are programmed for completion through 1975. This refers to the "ground" and "air" versions for which TOPOCOM is responsible. Of the Special Intelligence Graphics (initiated by CIA for intelligence support and also mostly at the scale of 1:250,000), 1,135 have been completed and only 143 more are programmed for completion by the end of 1972. Revisions of medium-scale map sheets with all-source data number 160. There are 32 more to be done by 1972. Revisions of large-scale maps on the same basis will number 1,000 at least as presently programmed. Two hundred

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and twenty seven City Plans have been completed, (many [redacted] and 533 are still programmed for completion. Entirely new large-scale 1:50,000 scale maps, using all-source for stereo compilation, are presently programmed in the number of 3,500 for completion in the 1975-77 period. The above statistics refer only to TOPOCOM output, and do not include ACIC and NAVOCEANO, or civil agencies' programming.

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6. There was an extended briefing on TOPOCOM's responsibilities for pre-flight, in-flight, and post-flight calibration of the several cameras in the SI configurations, the KH-4B, [redacted] I have given you a moderately accurate run-down on this before. There was also a briefing on point marking, mensuration, stereo-compilation, and analytical triangulation which was also covered in my memorandum to you of 24 July 1970. They described the new Photographic Coverage Analysis Device (PCAD) for determining cloud cover. Their model is just now operational. It is not fully automatic. A "puck" must be moved manually. The resultant cloud information is furnished to [redacted] on an area basis. [The PCAD was obtained through NPIC by contract. NPIC's model, now in a test phase, is different and fully automated, since NPIC works on a point basis.] Also the new Automatic Point Positioning Instrument (APTI), for marking and measuring points on three overlapping images at one time, is now operational. It is a great timesaver.

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7. The group was then led through the production facilities including the viewing and description of the M-4 stereo plotter, the Gamma II and the Gamma III rectifiers, the AS-11A, and the UNAMACE (of which TOPOCOM has six at a cost of [redacted] [redacted] I have described these to you in my memorandum of 24 July 1970.

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TOP SECRET

8. There was some discussion of the Intergrated Topographic Data Bank, with emphasis on the savings that would result from holding products at the compilation manuscript stage; for instance, prior to scribing color separation plates and printing line maps. In the case of 1:50,000 scale line maps, the cost through final printing would be about [] per sheet, but less than [] when not carried through to completion. []

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[] Orthophoto maps at the same scale would cost quite a bit less, and by holding compilation material in non-finalized form, similar savings would result. Special requests from commanders in the field might not require formal finished products but only selected elements. This handling of the data base permits rapid response to expressed needs in the field.

9. Some time was spent on developments in the field of semi-automatic cartographic equipment to be used in the cartographic phases of compilation. The Stereo-compilation Digitizer System will automatically digitize the lines being traced manually by use of the Kelsh, M-4, and other stereo-plotters. The Digital Planimetric Compiler System (DPCS) will convert cultural information on orthophotos to digitized information. The On-line Digital Input/Output Display Device is essentially a rapid editing instrument, where the operator can use an electro-pencil to correct. The Color Scanner Photo-plotter System (CSPS) operates with a horizontal drum scanner and automatically separates and records individual colors from a multi-color manuscript. These and other pieces of cartographic equipment are either under development or nearly ready for activation. When fully operative, very substantial amounts of manpower and time will be saved and will permit major increases in output.

10. There was an interesting presentation of TOPOCOM's lunar mapping and model making. Models measuring roughly 12 by 15 feet at 1:1 vertical scale are made to use in aiding in the

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TOP SECRET

simulation of the moon's surface as the astronauts approach. The astronauts practice for weeks with these models, which are mounted in association with simulated command and LEM models.

11. The representatives from the civil agencies seemed interested and impressed with the entire briefing. I feel that TOPOCOM is really getting well organized to handle the upcoming

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camera when it becomes available. They are heavily counting on it.

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